

We Claim:

1. Heat resistant FeCrAl-alloy with improved oxidation resistance, c h a r a c t e r i z e d in having a Ca-enriched surface layer.
2. Material according to claim 1, c h a r a c t e r i z e d in that said Ca-enriched surface layer is 10 nm up to 3  $\mu$ m thick, preferably between 10 nm and 500 nm.
3. Material according to any of the preceding claims c h a r a c t e r i z e d in that said surface layer has a maximum Ca-content of 0,01-50 wt-%, preferably 0.1-10wt-%.
4. Material according to any of the claims 1-3, c h a r a c t e r i z e d in that the FeCrAl alloy comprises (by weight) 10-40 % Cr, 1.5-10 % Al, optionally REM elements and/or Yttrium in an amount up to 0.11 %, up to 4 % Si, up to 1 % Mn, the remainder being iron and normal steelmaking impurities.
5. Material according to any of the claims 1-4, c h a r a c t e r i z e d in that the aluminum depletion of the FeCrAl alloy is reduced under cyclic thermal stress.
6. Method of making a heat resistant FeCrAl-alloy with improved oxidation resistance c h a r a c t e r i z e d in applying a Ca-containing layer on the surface of the alloy and heat treating in one or several steps.
7. Method according to claim 6, c h a r a c t e r i z e d in that the heat treatment is performed at a temperature of between 800°C and 1200°C, preferably between 850°C and 1150°C in an oxidizing atmosphere.
8. Method according to any of the claims 6 and 9, c h a r a c t e r i z e d in that the Ca-containing layer is applied is in the form of a Ca-containing compound in the form of calcium carbonate, calcium nitrate, calcium stearate, calcium-rich colloidal dispersion or in the form of calcium oxide or mixtures of such oxides or in combination thereof.
9. Method according to any of the claims 6-8, c h a r a c t e r i z e d in that the Ca-containing compound is applied to a FeCrAl alloy in form a foil.

10. Method according to any of the claims 1 and 8 to 9, c h a r a c t e r i z e d in that the Ca-containing compound is applied by Physical Vapor Deposition (PVD) methods.
11. Use of the alloy according to claims 1-10 in form of thin foils for heating applications or catalytic converter applications.